

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-38. (Canceled)

39. (Previously presented) The device of claim 42, further comprising an indexing button provided on said force feedback interface peripheral, said indexing button enabling an indexing mode.

40. (Previously presented) The device of claim 42, wherein said actuator is controlled by a local processor in response to signals received from said host computer.

41. (Canceled)

42. (Previously presented) A device, comprising:

at least one sensor configured to detect one of a motion and a position of a manipulandum, a location of a cursor displayed by a host computer in communication with the device being responsive to said manipulation of said manipulandum;

at least one actuator operative to output a force feedback sensation; and

a force functionality button provided on said force feedback interface device and manipulatable by said user, said force functionality button configured to toggle the output of the force feedback sensation output by said actuator when said cursor encounters a designated graphical object or region upon a graphical display of said host computer, said toggling based on said manipulation of said force functionality button by said user, wherein said force sensation

applied by said actuator when or after said force functionality button is depressed by said user, said force feedback sensation being associated with said cursor crossing a border of a click surface, said force feedback sensation being a resistive spring force resisting motion of said cursor into said click surface.

43. (Previously presented) The device of claim 42, wherein said click surface is selected by said cursor when said cursor moves a predetermined threshold distance into said click surface.

44. (Previously presented) The device of claim 42, wherein said spring force enables an isometric control mode, an amount of penetration of said manipulandum against the spring force controlling a speed of scrolling of a document displayed by said host computer.

45-48. (Canceled)

49. (Previously presented) The method of claim 52, further comprising providing an indexing button on said force feedback interface peripheral, said indexing button enabling an indexing mode.

50. (Previously presented) The method of claim 52, wherein said actuator is controlled by a local processor in response to signals received from said host computer.

51. (Canceled)

52. (Previously presented) A method, comprising:

providing a force feedback interface peripheral including at least one sensor and at least one actuator, said actuator operative to output forces to a user of said force feedback interface peripheral;

providing a button on said force feedback interface peripheral that can function as a force functionality button, said force functionality button manipulatable by said user;

enabling a cursor to be controlled on a graphical display of a host computer, the displayed location of said cursor being responsive to manipulation of a portion of said force feedback interface peripheral; and

enabling said force functionality button to toggle the application of a force feedback sensation by said actuator when said cursor encounters a designated graphical object or region upon the graphical display of said host computer, said toggling based on said manipulation of said force functionality button, said force feedback sensation being associated with said cursor crossing a border of a click surface, said force feedback sensation being a resistive spring force resisting motion of said cursor into said click surface.

53. (Previously presented) The method of claim 52, further comprising selecting the click surface based on movement of the cursor a predetermined threshold distance into the click surface.

54. (Previously presented) The method of claim 52, further comprising enabling an isometric control mode, an amount of penetration of the manipulandum against the spring force controlling a speed of scrolling of a document displayed by the host computer.

55-60. (Canceled)

61. (Previously presented) The device of claim 42, said button being a first button that can function as a first force functionality button providing a first force functionality mode, the device further comprising:

a second button on said force feedback interface peripheral that can function as a second force functionality button, said second force functionality button manipulatable by said user, wherein manipulation of said second force functionality button causes a second force functionality mode of said force feedback interface device to be active, said second force functionality mode being different from said first force functionality mode.

62. (Previously presented) The device of claim 61, wherein said second force functionality button toggles a pressure scrolling mode, a spring force being output in said pressure scrolling mode on said manipulandum opposing the movement of said cursor through a border of click surface, a rate of scrolling of an object being controlled by an amount of penetration of said manipulandum against said spring force.

63. (Previously presented) A device, comprising:

at least one sensor that detects a motion or position of a manipulandum coupled to said device, a location of a cursor displayed by a host computer in communication with the device being responsive to said manipulation of said manipulandum;

at least one actuator operative to output a force feedback sensation;

an indexing button provided on said device, said indexing button enabling an indexing mode; and

a force functionality button provided on said device and manipulatable by said user, said force functionality button toggles the output of the force feedback sensation output by said actuator when said cursor encounters a designated graphical object or region upon a graphical display of said host computer, said toggling based on said manipulation of said force functionality button.

64. (Previously presented) The method of claim 52, said force functionality button being a first force functionality button, the method further comprising providing a second button on said force feedback interface peripheral that can function as a second force functionality button, said second force functionality button manipulatable by said user, wherein manipulation of said second force functionality button by said user causes a second force functionality mode to be active, said second force functionality mode being different from said first force functionality mode.

65. (Previously presented) The method of claim 64, said second force functionality button being enabled to toggle a pressure scrolling mode, wherein a spring force is output in said pressure scrolling mode on said portion of said force feedback interface peripheral opposing the movement of said cursor through a border of a designated graphical object or region, a rate of scrolling of an object being controlled by an amount of penetration of said portion of said force feedback interface peripheral against said spring force.

66. (Previously presented) A method, comprising:

providing a force feedback interface peripheral including at least one sensor and at least one actuator, said actuator operative to output forces to a user of said force feedback interface peripheral;

providing a button on said force feedback interface peripheral that can function as a force functionality button, said force functionality button being manipulatable;

providing an indexing button on said force feedback interface peripheral, said indexing button enabling an indexing mode when depressed by said user;

enabling a cursor to be controlled on a host computer, the displayed location of said cursor being responsive to manipulation of a portion of a force feedback interface peripheral; and

enabling said force functionality button to toggle the application of a force feedback sensation by said actuator when said cursor encounters a designated graphical object or region upon the graphical display of said host computer; said toggling based on said manipulation of said force functionality button by said user.

67. (Previously presented) A device, comprising:

a sensor configured to detect a movement of the sensor and to output a position signal, the position signal operative to update data values associated with a location of a cursor displayed on a graphical interface;

an actuator configured to output haptic feedback based on the location of the cursor displayed on the graphical interface; and

a button coupled to said actuator, the button configured to selectively modify the haptic feedback output by said actuator when the data values associated with the location of the cursor are associated with a graphical object displayed on the graphical interface, the haptic feedback

being representative of a resistive spring force opposing a movement of said cursor displayed on the graphical interface.

68. (Previously presented) The device of claim 67, further comprising:
an indexing button coupled to the actuator, said indexing button configured to enable an indexing mode.

69. (Previously presented) The device of claim 67, wherein the actuator is configured to be controlled by a local processor, the local processor configured to receive a control signal from a host computer coupled to the graphical interface.

70. (Previously presented) The device of claim 67, wherein the position signal is operative to scroll a document displayed on the graphical interface, a speed at which the document is scrolled being proportional to a movement of the cursor into a window on the graphical interface.

71. (Previously presented) The device of claim 67, the button being a first button, the haptic feedback being a first haptic-feedback mod; the device further comprising:
a second button configured to actuate a second haptic-feedback mode.

72. (Previously presented) A method, comprising:
outputting a position signal, the position signal being based on a movement of a haptic-feedback device;

updating data values associated with a location of a cursor displayed on a graphical interface, the updating being based on the position signal;

outputting haptic feedback at the haptic-feedback device based on a feedback signal, the feedback signal being based on the data values associated with the location of the cursor corresponding to data values associated with one of a graphical object and graphical region displayed on the graphical interface;

selecting a first type of haptic feedback to be provided to the haptic feedback device using a button on the haptic-feedback device when the button is in a first position;

selecting a second type of haptic feedback when the button is in a second position different from the first position; and

modifying the type of haptic feedback output based on the selected type of haptic feedback

73. (Previously presented) The method of claim 72, wherein the position signal is operative to scroll a document displayed on the graphical interface, a speed at which the document is scrolled being proportional to a penetration of the cursor into a window on the graphical interface.

74. (Previously presented) The method of claim 72, the haptic feedback being a first haptic feedback, the button being a first button, the method further comprising:

outputting a second haptic-feedback based on the feedback signal;

modifying the output of the second haptic-feedback using a second button coupled to the haptic-feedback device.

75. (Previously presented) The method of claim 74, wherein the outputting the second haptic-feedback includes outputting a haptic feedback with a different force functionality than the first haptic feedback.

76. (Previously presented) A device, comprising:

a sensor configured to detect a movement of the sensor and to output a position signal, the position signal operative to update data values associated with a location of a cursor displayed on a graphical interface;

an actuator configured to output haptic feedback based on the location of the cursor displayed on the graphical interface; and

a button coupled to said actuator, the button configured to selectively modify the type of haptic feedback output by said actuator when the data values associated with the location of the cursor are associated with one of a graphical object and graphical region displayed on the graphical interface, the haptic feedback being a first haptic-feedback when the button is in a first position and being a second haptic-feedback when the button is in a second position.

77. (Previously presented) The device of claim 76, wherein the first haptic-feedback is representative of a resistive spring force and the second haptic-feedback has a different force functionality than the first haptic feedback.

78. (Previously presented) The device of claim 77, wherein the position signal is operative to scroll a document displayed on the graphical interface, a speed at which the document is scrolled being proportional to a penetration of the cursor into a window on the graphical interface.

79. (Canceled)